Hubrecht was a firm friend of England and a constant visitor at scientific meetings here; he could speak English like a native, and his death will be felt as a personal loss by a large circle of friends in this country. E. W. M.

NOTES.

THE following resolution of the council of the Royal Geographical Society has been accepted by the fellows of the Society: "The council, having become aware that Sir Sven Hedin, K.C.I.E., a subject of a neutral State, has identified himself with the King's enemies by his actions and published statements, orders that his name be removed from the list of honorary corresponding members of the society." Dr. Sven Hedin has also been excluded from the Russian Imperial Geographical Society.

THE council of the Royal Geographical Society has made the following awards of medals and other prizes to be presented at the anniversary meeting on May 17: Founder's Medal to Sir Douglas Mawson for his conduct of the Australian Antarctic Expedition of 1911–14; Patron's Medal to Dr. Filippo de Filippi for his expedition to the Karakoram and Eastern Turkestan in 1913–14; Victoria Research Medal to Dr. Hugh Robert Mill for geographical research extending over many years; Murchison Award to Captain J. K. Davis, who commanded the S.Y. *Aurora* during the time of the Australian Antarctic Expedition; Back Grant to Mr. C. W. Hobley for his contributions to the geology and ethnology of British East Africa; Cuthbert Peek Grant to Mr. A. Grant Ogilvie for his work in geographical investigation and research; Gill Memorial to Colonel Hon. C. G. Bruce for explorations in the Himalayas.

THE annual general meeting of the Chemical Society was held at Burlington House on Thursday, March 25. The Longstaff medal for 1915 was presented to Dr. M. O. Forster, and the retiring president, Prof. W. H. Perkin, then delivered his presidential address on "The position of the organic chemical industry," an abstract of which appears elsewhere in this issue. A vote of thanks to the president was proposed by Prof. H. E. Armstrong and seconded by Sir William Tilden. The new officers and members of council elected were:—*President,* Dr. Alexander Scott; *Vice-Presidents,* Prof. F. R. Japp and Prof. R. Threlfall; *Treasurer,* Dr. M. O. Forster; *Ordinary Members of Council,* Mr. D. L. Chapman, Prof. F. G. Donnan, Mr. W. Macnab, and Dr. J. F. Thorpe.

THE sixty-eighth annual meeting of the Palæontographical Society was held in the rooms of the Geological Society, Burlington House, on March 26, Dr. Henry Woodward, president, in the chair. The report stated that most of the authors for whom space had been reserved in the annual volume, had failed to contribute owing to the circumstances of the war, and an instalment only of Mr. F. W. Harmer's "Monograph of Pliocene Mollusca" would form the issue for 1914. Messrs. John Hopkinson, Clement Reid, S. Hazzledine Warren, and Henry Woods were elected new members of council. Dr. Henry Woodward was re-elected president, and Mr. R. S. Herries and Dr. A. Smith Woodward were re-elected treasurer and secretary respectively.

THE seventieth annual general meeting of the Ray Society was held on March 25, the president, Prof. McIntosh, in the chair. The report for 1914 stated that the number of members had increased and the finances were satisfactory, but a diminution of income was to be expected this year owing to the loss of German and Austrian subscribers on account of the war. For 1914 the "British Marine Annelids," vol. iii., part 1, by the president, had been issued, and for 1915 two volumes were in preparation: the "British Fresh-water Rhizopoda," vol. iii., containing the filose Conchulina, by G. H. Wailes, and the "Principles of Vegetable Teratology," vol. i., containing non-vascular plants and the root, stem, and leaves of vascular plants, by W. C. Worsdell. Prof. W. C. McIntosh was re-elected president, Dr. F. Du Cane Godman treasurer, and Mr. John Hopkinson secretary.

WE notice with regret the announcement of the death on March 27 of Mr. J. J. Beringer, associate of the Royal School of Mines, and principal of the School of Metalliferous Mining, Camborne, Cornwall

THE death is announced of Prof. F. A. Sherman, professor of mathematics at Dartmouth College, New Hampshire, from 1871 until his retirement as professor emeritus in 1911. Prof. Sherman died on February 25 in his seventy-fourth year.

WE learn from *Science* that the Rockefeller Institute for Medical Research has made a grant of 4000*l.* to be used under the institute's direction to further medical research work under war conditions, and is equipping Dr. Carrel's new hospital in France with apparatus for research work in pathology, bacteriology, and surgery.

THE death is announced, in his seventy-seventh year, of the Rev. Dr. S. J. Coffin, professor of astronomy since 1873 at Lafayette College, Pennsylvania, in which institution he also occupied the chair of mathematics from 1876 to 1886. He was the author of a treatise on conic sections, and had revised "The Winds of the Globe," by his father, Prof. J. H. Coffin.

THE *Times* correspondent at Ottawa states that in the Canadian House of Commons on March 27 Mr. Hazen, Minister of Marine, expressed the opinion that Mr. Stefansson, the Canadian explorer, had been lost with his two companions. The Government, he said, is doing everything of a practicable nature to find the missing men, and three steamers now in the Arctic will set out to the rescue of the expedition as soon as the ice breaks up in the spring.

THE American Association of Immunologists will hold its annual meeting at Washington on May 10 next, under the presidency of Dr. G. B. Webb, of Colorado Springs. The association was founded in 1913 for the purpose of bringing together the medical men of the United States and Canada who are engaged in the scientific study of immunity and bacterial therapy; to study the problems of immunology; and to promote scientific research in this department; to spread a correct knowledge of vaccine therapy and immunology among general medical practitioners.

THE Board of Agriculture and Fisheries announces that with a view of obtaining further information on their growth, migrations, and general life-history, a number of salmon and sea trout have been marked by means of a ring or wire, with or without a label or tag attached. Rewards will be paid for all such marks returned to the Board, with or without the fish, with information as to the date, time, place, and method of capture. When the entire fish is not sent full particulars of its weight, length, sex, and condition should also be given, and a portion of the skin or flesh of the fish to which the mark is fixed should be cut out. Postage and carriage need not be prepaid, and parcels and letters should be addressed to the Board at 43 Parliament Street, London, S.W.

PROF. H. ROBINSON, who occupied the chair of civil engineering at King's College, London, from 1880 to 1902, died on March 24, at seventy-eight years of age. From a short obituary notice in the *Times* we learn that Prof. Robinson had charge of many important works, including railways, water supply, sewerage, and electric lighting, an example of the latter being the successful installation at St. Pancras. He engineered the first public hydraulic power scheme in this country at Hull, and took an active part in promoting the distribution of energy in other towns by hydraulic power, compressed air, and electricity. Prof. Robinson was a fellow of King's College, of the Surveyors' Institution, and of the Sanitary Institute, and a past-president of the Society of Engineers.

WE notice with much regret the announcement of the death, on March 23, at fifty-three years of age, of Dr. S. G. Rawson, principal of the Battersea Polytechnic, London. Dr. Rawson was educated at Charterhouse School, the Royal College of Science, University College, London, and University College, Liverpool. He afterwards became lecturer in chemistry at University College, Liverpool, and in 1895 he was appointed principal of the Technical College, Huddersfield. In 1903 he was appointed director of education to the Worcestershire County Council, and in September, 1907, he became principal of the Battersea Polytechnic. Dr. Rawson was a doctor of science of the University of London, an associate of the Royal College of Science, fellow of the Institute of Chemistry and of the Chemical Society, and, since January, 1914, was chairman of the council of the Association of Technical Institutions.

WE regret to announce the death of Mr. James Kearney, who for the last thirteen years has been inspector in charge of the photo-engraving section of the Egyptian Survey Department. He was originally in the Royal Engineers, and accompanied Sir G. Graham's expeditionary force to the Sudan in 1885 as photographic expert. He was then for several years attached to the Solar Physics Committee at South Kensington, and will be remembered by many old students of the Royal College of Science, London. In 1893 he went to West Africa with the British Eclipse Expedition as expert photographer, and again in 1906 he was with the party who observed the solar eclipse at Aswan. During this period he several times received the thanks of the Royal Society. From 1893 to 1902 he was one of the instructors at the School of Military Engineering at Chatham, which he left to go to Egypt. His wide experience of his subject and originality have largely influenced the development of the reproduction of maps by the Egyptian Survey Department, and practically all their maps now are reproduced by the photo-metal process.

THE following are among the arrangements for lectures at the Royal Institution after Easter:—"The Animal Spirits," Prof. C. S. Sherrington; "Advances in the Study of Radio-active Bodies," Prof. F. Soddy; "The Evolution of Steel: Influence on Civilisation," Prof. J. O. Arnold; "The System of the Stars: (1) Star Colour and its Significance; (2) The Stellar System in Motion," Prof. A. S. Eddington; Advances in General Physics," Dr. A. W. Porter; "The Movements and Activities of Plants," Prof. V. H. Blackman; "Method of Presenting Character in Biography and Fiction," Wilfrid Ward; "Modern Artillery," Lieut.-Col. A. G. Hadcock; "Photo-electricity" (the Tyndall Lectures), Prof. J. A. Fleming; "Colouring Matters of the Organic World: (1) Colouring Matters of Nature; (2) Dyes, the Creation of the Chemist," Dr. M. O. Forster. The Friday evening discourses will begin on April 16. Mr. Stephen Graham will deal with "The Russian Idea" and Major P. S. Lelean with "Military Hygiene at the War"; they will be followed by Canon Pearce, Sir John Jackson, Sir Ernest Rutherford, Dr. H. Walford Davies, Profs. F. G. Donnan and O. W. Richardson, and Mr. Edward Heron-Allen.

IT is an axiom in business that to be successful the merchant must provide what the public wants. He may try to educate the public by advertisement and other means, but it is the public demand alone that regulates the quality of the supply. The population of this country demands a white loaf of light texture made from the finest portion of the wheat berry, and bakers and millers have made it their business to supply this want. Even at the height of the standard bread boom it is stated that the demand for this article did not reach 5 per cent. of the total. Whether the public taste is the most satisfactory on scientific grounds is possibly open to question; the subject was discussed in an article in these columns on January 7. In the opinion of nearly everyone qualified to judge, our bread is good enough in quality, and the fact remains that the public will take no other. The Bread and Food Reform League holds the contrary view, and recently presented a memorial to the President of the Local Government Board. The *Times* of March 26 reports the presentation of this memorial under the heading, "A Notable Protest." The list of signatories contains a number of notable names, but those of experts who can speak with authority upon the subject are not prominent, which is typical of the national attitude towards scientific knowledge. Mr. Samuel expressed the opinion that it is impracticable to undertake at the present time legislation on the lines suggested by the memorial.

WE regret to record the death of Lady Huggins, at Chelsea, on March 24, after a long illness. From the time of their marriage in 1875, Lady Huggins was the able and unwearying assistant of her distinguished husband, the late Sir William Huggins, and was definitely associated with him as joint author of numerous original papers on astrophysical subjects. Among the investigations in which she took special part were those relating to the spectrum of the great nebula in Orion, the photographic spectra of Uranus and Saturn, absorption bands in the spectrum of Mars, the spectrum of Nova Aurigæ, and the spectra of Wolf-Rayet stars. In laboratory work she collaborated in investigations of the effect of density on the intensities of the H and K lines of calcium, of the modifications of the magnesium line 4481 under different experimental conditions of the spark discharge, and in photographic studies of the spectrum of the spontaneous luminous radiation of radium. Lady Huggins was also joint author of the well-known "Atlas of Representative Stellar Spectra" (1899), which includes the later work of the Tulse Hill Observatory, and a general discussion of the problem of stellar evolution; initial letters and other drawings by Lady Huggins add much to the beauty and interest of this volume. She also acted as joint editor of "The Scientific Papers of Sir William Huggins," published in 1909. In recognition of her valuable services to astrophysics, Lady Huggins was elected an honorary member of the Royal Astronomical Society in 1903.

The death is announced, after a short but painful illness, of Prof. Eberhard Fraas, curator of the geological section of the Royal Natural History Museum, Stuttgart. Prof. Fraas, who was born in 1862, was the son of Prof. Oscar F. von Fraas, whom he succeeded in the curatorship at Stuttgart in 1897. He was a student of Prof. Karl A. von Zittel, of Munich, and devoted his special attention to vertebrate palæontology. His first important work was a memoir on the Labyrinthodonts of the Swabian Trias, published in the *Palaeontographica* in 1889. This was followed in 1891 by a separate volume on the Ichthyosauria from the Jurassic of Würtemberg. In 1894 he first announced Mr. B. Hauff's remarkable discovery of the integument and fins of Ichthyosaurus, and during following years he described several fossil fishes and reptiles obtained by Mr. Hauff from the Upper Lias of Holzmaden. As a curator of the Royal Museum, Prof. Fraas made a special effort to collect systematically the fossil reptiles from the quarries in the Triassic sandstones round Stuttgart, and met with great success. He not only discovered unusually fine examples of Dinosaurians and Crocodilians of known species, but also obtained several new skeletons throwing light on the ancestry of the Chelonians. Most of this collection still awaits detailed description. Prof. Fraas also interested wealthy friends in the Tertiary mammalia of Egypt, and among the specimens obtained was the skull of the most primitive known whale, which he described in 1904 under the name of *Protocetus atavus.* He showed that this skull was intermediate between that of ordinary early toothed whales and that of the early land carnivores (Creodonta). In 1907 ill-health caused him to visit German East Africa, and while there he discovered the first remains of the gigantic Cretaceous dinosaurs, which have subsequently proved to exceed in size even the largest of the dinosaurs known from North America. Prof. Fraas's excellent scientific work will remain as a permanent memorial of his acumen and industry.

The large Australian collections of stone implements are little known to ethnographers. During the recent visit of the British Association, Miss A. C. Breton carefully examined the local museums, and in *Man* for March she gives an account of them. The finest collection, that at Melbourne, has been carefully arranged by Messrs. A. S. Kenyon and D. J. Mahony, who will, it may be hoped, publish an account of it. Their researches tend to show that, as in other countries, the *coup de poign,* once invented, was never forgotten. As other forms became known, all continued in use together until something more serviceable was introduced.

The question has often been asked: Was there an earlier race in occupation of the area in Africa at present held by the Bantus? In *Man* for March Mr. W. H. Beech reports that in the Kikuyu country some ancient pottery has been found, said to be the work of a people called Gumba, who displaced the Maithoachiana, cannibal dwarfs. These Miathoachiana are now believed to be earth-gnomes, skilled in the art of iron-working. Mr. Beech, with some amount of plausibility, suggests that they were possibly Bushmen, Pygmies, or both, and that they were a local indigenous race of the Stone age, who used the flint implements often found in the Kikuyu country. The Gumba are said to have made pottery and to have taught the Kikuyu the art of smelting. They may have been pre-Bantu Hamite invaders; but of this there is no evidence, and the legend may tend to show that the first discovery of iron was made in Africa.

Irish Gardening for March, 1915, contains several useful horticultural papers. One on the different species of Hamamelis, or witch hazel, hardy in the British Isles, is appropriate as these interesting shrubs from China and Virginia are so valuable in the garden in full flower in mid-winter. *Hamamelis mollis,* from China, with its fragrant flowers, is the most beautiful species. *H. virginiana,* from eastern North America, was introduced so long ago as 1736, and is further of interest since witch hazel snow or hazelene snow is prepared from an extract of the bark.

The annual note on the ornamental waterfowl at Kew is always of interest, since so many species breed there in captivity. In 1914 the following birds were reared:—Carolinas; mandarins; common, red-crested, white-eye pochards, and tufted ducks; common sheldrake; Brazilian, common, and Chilian teal; bar-headed, white-fronted, and other geese; and a black-necked swan. Several geese having been destroyed by a badger which took up its abode in the gardens it was decided to dig him out and deport him. When digging him out, his earth was found to be carpeted with bluebell leaves and flowers, and many shovelsful were thrown out.

The *Kew Bulletin* (No. I., 1915) contains an account of additions to the gardens, museums, library, and herbarium during the past year. Among many interesting presentations to the gardens the most valuable was the fine collection of botanical orchids presented by Lady Lawrence. Collections of filmy ferns in excellent condition have also been received from the Director of Agriculture, Jamaica, Dr. L. Cockayne, New Zealand, and the Assistant-Director of Agriculture, Trinidad. The herbarium has acquired no fewer than 25,500 specimens as donations or exchanges, and 13,500 by purchase. Among the former, Mr. Crossland's collection of British fungi, with drawings, presented by the Bentham Trustees, is one of the most important additions. The Bentham Trustees have also enriched the library with several rare books, and Miss Willmott has presented a copy of her fine work on "The Genus Rosa."

The Canadian Department of Mines has published a Memoir (No. 20-E) upon the goldfields of Nova Scotia by Mr. W. Malcolm. This forms a large volume of some 330 pages, and gives a detailed description of the various gold-producing areas, which together include about one-half of the entire province of Nova Scotia. These descriptions are mainly of local interest, but a good deal will be found of importance to the student of ore deposits, owing to the fact that these particular deposits present a number of specially interesting features. The report shows clearly that the veins belong mainly to the type known as bedded veins—that is to say, mineral veins which are interstratified with, and generally conformable to, the country rocks, though some fissure veins that cross the formations are also met with. To the former class belong the numerous saddle veins, and especially those curious corrugated saddle veins, to which the name of "barrel quartz" is given locally; the peculiar structure of these veins has long attracted the attention of geologists. The memoir has been compiled with great care, the detailed statistics of production being amongst its most welcome features, and it forms a very valuable contribution to our knowledge of these goldfields.

The wet winter of 1914–15 is dealt with in *Symons's Meteorological Magazine* for March in a preliminary way, it being as yet too early to prepare any complete account of the rainfall. Taking the British Isles as a whole, the four months, November and December, 1914, and January and February, 1915, are said to have been all wet, and of these December and February were, relatively to the average, the wettest. November rainfall was below the average in the south of Ireland and in the south-west of Wales, while December was wet everywhere, especially in the south. More than two and a half times the average fell in the south-east of England, and more than three times the average in Sussex. The rainfall of January was double the average at a few stations in England, again chiefly in the south-east. In February more than twice the average rainfall was recorded in the south of England and Wales, in Yorkshire, and in the south and east of Scotland. The rainfall for the four months was 168 per cent. of the average over England and Wales, 139 per cent. over Scotland, 150 per cent. over Ireland, and over the British Isles as a whole it was 155 per cent. of the average. No previous winter seems to have been so wet. In the Thames Valley the general rainfall for the four months was 19·19 in., which is 205 per cent. of the average, and previous records, which exist for thirty-two years, show no aggregate general rainfall for four months over the Thames Valley so much as double the average.

The stability relations of the ternary system CaO–Al_2O_3–SiO_2 are studied by Mr. G. A. Rankin in the *American Journal of Science*, vol. xxix (1915), p. 1. Photographs of models, due to the ingenuity of Mr. England, are given; in these, the horizontal positions represent the compositions of the ternary mixtures and the vertical measures give the corresponding melting temperatures. The result has some resemblance to the surface of a mountainous country, the peaks of which represent the melting points of compounds stable at their melting points. The base is an equilateral triangle, the heights above its angles being the respective melting points of the three members of the system, *i.e.* CaO, 2570°; Al_2O_3, 2050°; SiO_2 (cristobalite), 1625° C.

The Washington Bureau of Standards has carried out a useful investigation of the familiar "basic lead acetate solutions." Mr. R. F. Jackson, in Bulletin No. 232, has given a complete equilibrium diagram for the system $H_2O | PbO | PbC_4H_6O_4$. In addition to the free base, $Pb(OH)_2$, and the neutral acetate, $PbC_4H_6O_4$, two double-compounds may exist in equilibrium with the solution. The most important of these has the formula $PbC_4H_6O_4,2PbO,4H_2O$, but there is a narrow range of compositions within which the compound $3PbC_4H_6O_4,PbO,3H_2O$, is the stable phase.

The chemical and mechanical relations of iron, cobalt, and carbon formed the subject of a paper read by Prof. J. O. Arnold at the Institution of Mechanical Engineers on March 19. The paper gives account of research work on the influence of cobalt, from which it appears that the tensile strength increases with the percentage of cobalt present. In annealing tests, with 2·68 per cent. of cobalt present, very little of the combined carbon was precipitated as graphite; two-thirds of the combined carbon passed into the graphitic form in specimens containing 5·5 per cent. cobalt, and in specimens having a higher percentage of cobalt, annealing caused the whole of the combined carbon to pass into the graphitic form. Dr. Arnold, in his remarks, pointed out that there were three true steels: (1) the old iron and carbon steel; (2) the true iron and carbon steel with 5 per cent. of vanadium; in this steel carbide of iron ceased to exist, carbide of vanadium is present; (3) iron and carbon steel having 11·5 per cent. of tungsten; the tungsten expels the carbide of iron, giving the true tungsten steel. Iron and carbon steel hardens at 730° C., vanadium steel at a temperature just before the melting point (1450° C.), and in tungsten steel hardening starts at 850° C., and is not completed until nearly 1200° C.

Messrs. Henry Sotheran and Co., of 140 Strand, W.C., and 43 Piccadilly, W., have issued in two parts—Nos. 754 and 755—a catalogue of important works in natural history, including zoology, botany, gardening, farming, microscopy, and geology. The library of the late Prof. Howes is included in the collection. Owing to the war, the volumes are being offered at very low prices.

The reference in Nature of March 25 (p. 96) to "three Englishmen, namely Sir A. Geikie, Sir William Ramsay, and Lord Rayleigh," who are members of seven national scientific societies, has brought the inevitable letter from a correspondent suggesting injustice to "Scots." In the case of Prussia we used deliberately the phrase "men of science in Prussia," knowing, of course, that Prof. van't Hoff, though he lives in Berlin, is not a Prussian. It would perhaps have been better to have used the word "Britons" instead of Englishmen in the note, or to have said "men of science in England," as the comparative statement holds good only by taking the place of residence of each person.

OUR ASTRONOMICAL COLUMN.

Comet 1915*a* (Mellish).—The following is the ephemeris for Mellish's comet for the current week as computed by Messrs. Braae and Fisher-Petersen:—

12h. Berlin Mean Time.

	R A. (true) h. m. s.	Decl. (true) ° ′	Mag.
March 31	18 2 51	−1 23·1	
April 2	5 9	1 41·2	8·5
„ 4	7 25	2 0·5	
„ 6	9 40	2 21·1	8·3
„ 8	18 11 55	−2 43·2	

The comet is in the constellation of Serpens, and lies a little to the west of the star Eta. It is approaching both the earth and sun, and it will be nearest the earth in about the middle of June. Unfortunately it will be too far south to be seen from these latitudes, but its increasing brightness will make it a conspicuous object for observers in the southern hemisphere. Elements and ephemeris slightly different from the above appear in the Lick Observatory Bulletin No. 268.

The Ninth Satellite of Jupiter.—An account of the discovery, observations, and orbit of the ninth satellite of Jupiter is given by Seth B. Nicholson in No. 265 of the Lick Observatory Bulletin. The discovery of this faint object (about 19 mag.) was made with the Crossley reflector at the Lick Observatory on plates taken on July 21 and 22 of last year. A series of photographs was being made to secure positions of the faint satellites of Jupiter, and it was on the first plates taken for the eighth satellite that the new member was found. The plate was so exposed that the photographic image of the eighth satellite should not be elongated, and a similar exposure was made on the following night. A comparison of the two plates indicated the image of an almost circular object on both plates near the eighth satellite. Further photographs on July 23 and 24 corroborated the reality of the images in question, and in consequence the discovery was publicly announced. The present bulletin is accompanied by a plate showing reproductions of the photographs taken on July 22, 23, and 24, indicating the eighth and ninth satellites. Mr. Nicholson next describes the computation of the orbit of the new body by Leuschner's method, and gives the approximate elements calculated by him, together with those of the eighth satellite derived by Crawford and Meyer for comparison. These serve to establish the identity of the object and to describe the nature of its orbit. The motion, like that of the eighth satellite, is retrograde.

	IX. Epoch and Osculation 1914 July 27·8817 G.M.T.		VIII. 1908 March 8·8233 G.M.T.	
M_0	49° 28′		266° 4′	
ω	71 10	1914·0	67 46	1908·0
☊	309 23		240 2	
i	157 51		144 51	
e	0·1630		0·3520	
μ	0°·3154		0°·4573	
P	3·125 years		2·155 years	
log a	9·3232		9·2156	

Relative Proper Motions of the Pleiades.—In the *Astronomische Nachrichten* No. 4790 Dr. R. Trümpler gives details of an interesting investigation on the relative proper motions of the Pleiades group. The work is based chiefly on a previous research (1901) by J. Lagrula entitled "Etude sur les occultations d'amas d'étoiles par la lune avec un catalogue normal des Pléiades," in which the differential positions of 102 stars in the Pleiades group in relation to the central star of η Tauri were determined. Dr. Trümpler derives the following conclusions from Lagrula's proper motions of forty-three stars. The relative proper motions of the eleven brightest stars are very small. The relative motions of the fainter stars have larger velocities than the bright stars, and exceed the limit of errors of the determinations. The proper motions of the fainter stars indicate a systematic variation from those of the brighter stars, or, in other words, the system of the fainter stars appears to displace itself with regard to the system of the brightest stars. In the case of the fainter stars there is indicated a movement of rotation in the direction of decreasing position angle, one rotation being of the order of two million years; the brightest stars appear to take either no part or only a very small part in this movement. The point of radiation for the proper motions of the Pleiades cannot be deduced with certainty. It can only be said that from the observed radial velocities of the brightest stars the parallaxes of the Pleiades must be smaller than 0·1″.

Report of the Stonyhurst College Observatory.—The report of the director of the Stonyhurst College Observatory for the year 1914 consists for the main part of the results of the meteorological, magnetical, and seismological observations. Reference to the astronomical work accomplished during the past year is incorporated under the heading, "Report and Notes by the Director." These include, first, the results of the measures of the disc areas of sun-spots as measured from drawings. It is shown that the year 1913 was the minimum year of sun-spot activity, while the year 1912 was the minimum year for the mean range of magnetic declination. These results are in accordance with those published in this column for March 18 (p. 75). An account is also given of the expedition to Hernösand, Sweden, to observe the total solar eclipse of August 21, 1914. Reference is made to the record of the strong red radiation coronal line 6374·3, which is described here as "a strong member of a band or fluting. . . ." The presence of this coronal radiation was first announced by M. Deslandres (*Comptes rendus*, November 16), and was soon corroborated by M. Carrasco by the examination of his own eclipse spectrograms.